

***LineUp With Math™* Alignment**  
**Mathematics Grade Level Expectations**  
**March 20, 2006 v.5**

**Strand: Number, and Operations**

**Grade-Level Expectations**

**M(N&O)-8-1 Demonstrates conceptual understanding of rational numbers with respect** to absolute values, perfect square and cube roots, and percents as a way of describing change (percent increase and decrease) **using explanations, models, or other representations.**

***LineUp With Math™* Activities**

--Use an interactive simulator plus calculation worksheets to apply proportional reasoning to identify and resolve distance, rate, time conflicts in air traffic control.

--Use percent relationships to resolve distance, rate, time conflicts in air traffic control.

**M(N&O)-8-4 Accurately solves problems involving** proportional reasoning; (percent increase or decrease, interest rates, markups, or rates); multiplication or division of integers; and squares, cubes, and taking square or cube roots.

--Use an interactive simulator plus calculation worksheets to apply proportional reasoning to identify and resolve distance, rate, time conflicts in air traffic control.

--Use percent relationships to resolve distance, rate, time conflicts in air traffic control.

**M(N&O)-8-7 Makes estimates** in a given situation (including tips, discounts, tax and the value of a non-perfect square root as between two whole numbers) by identifying when estimation is appropriate, selecting the appropriate method of estimation, determining the level of accuracy needed given the situation, analyzing the effect of the estimation method on the accuracy of results, and evaluating the reasonableness of solutions appropriate to grade level GLEs across content strands.

--Predict and resolve aircraft conflicts and explain results of mathematical calculations and simulations.

**Strand: Problem Solving, Reasoning, and Proof**

**Grade-Level Expectations 6-8**

**M(PRP)-8-1 Students will use problem-solving strategies to investigate and understand increasingly complex mathematical content** and be able to:

- Use problem-solving strategies appropriately and effectively for a given situation.
- Determine, collect and organize the relevant information needed to solve real-world problems.
- Apply integrated problem-solving strategies to

***LineUp With Math™* Activities**

--Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios.

--Use an interactive simulator plus calculation worksheets to model and resolve air traffic control conflicts.

--Explore and apply a variety of strategies to optimize the solution of air traffic control conflicts.

- solve problems in the physical, natural and social sciences, and in pure mathematics.
- Use technology when appropriate to solve problems.
- Reflect on solutions and the problem-solving process for a given situation and refine strategies as needed.

## Strand: Communication, Connections, and Representations

### Grade-Level Expectations 6-8

- M(CCR)–8–1 **Students will communicate their understanding of mathematics** and be able to:
- Articulate ideas clearly and logically in both written and oral form.
  - Present, share, explain, and justify thinking with others and build upon the ideas of others to solve problems.
  - Use mathematical symbols and notation.
  - Formulate questions, conjectures, definitions, and generalizations about data, information, and problem situations.

### *LineUp With Math™* Activities

- Predict and resolve aircraft conflicts and explain results of mathematical calculations and simulations.
- Use an interactive simulator plus calculation worksheets to model and resolve air traffic control conflicts.

- M(CCR)–8–2 **Students will create and use representations to communicate mathematical ideas and to solve problems** and be able to:
- Use models and technology to develop equivalent representations of the same mathematical concept.
  - Use and create representations to solve problems and organize their thoughts and ideas.
  - Convert between representations (e.g., a table of values, an equation, and a graph may all be representations of the same function).

- Use an interactive simulator plus calculation worksheets to model and resolve air traffic control conflicts.